

**What is claimed is:**

1. A method of making retroreflective elements comprising:  
providing a plurality of core particles;  
coating the particles with an unsolidified polymeric composition forming coated particles;  
combining the coated particles with optical elements in a continuous process such that  
optical elements are embedded in the unsolidified polymeric composition; and  
solidifying the polymeric composition forming retroreflective elements.
- 10 2. The method of claim 1 wherein the combining of the coated particle and optical  
elements comprises mechanically mixing.
3. The method of claim 1 wherein the unsolidified polymeric composition is selected from  
a molten thermoplastic resin and a bonded resin core precursor composition
- 15 4. The method of claim 1 wherein an excess of optical elements are provided and the  
method further comprises separating the retroreflective elements from the unembedded  
optical elements.
- 20 5. The method of claim 1 wherein the core particles ranges in size from about 0.1 mm to  
about 3 mm.
6. The method of claim 1 wherein the core particles consist of an inorganic material.
- 25 7. The method of claim 6 wherein the particles consist of a material selected from sand,  
roofing granules, and skid particles.
8. The method of claim 1 wherein the mechanical mixing is accomplished by means of at  
least one rotating mixing member.
- 30 9. The method of claim 8 wherein the mixing member comprises a rotating disc.

10. The method of claim 8 wherein the mixing member comprises an extruder screw.
11. The method of claim 8 wherein the mixing member comprises a grinding plate.
- 5      12. The method of claim 8 wherein the mixing member comprises at least two co-rotating or counter-rotating mixing members.
13. The method of claim 1 further comprising combining the unsolidified polymeric composition with at least one light scattering material.
- 10      14. The method of claim 13 wherein the light scattering material is selected from the group comprising diffusely reflecting pigments, specularly reflecting pigment and combinations thereof.
- 15      15. The method of claim 1 wherein the optical elements consist of microcrystalline beads.
16. The method of claim 15 wherein the microcrystalline beads consist of glass-ceramic beads.
- 20      17. The method of claim 15 wherein the microcrystalline beads consist of non-vitreous beads.
18. The method of claim 1 wherein the optical elements are surface treated with at least one adhesion promoting agent.
- 25      19. The method of claim 1 wherein the optical elements are surface treated with at least one floatation agent.
20. The method of claim 19 wherein the floatation agent is a fluorochemical.

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21. The method of claim 1 wherein the optical elements comprise first optical elements having a refractive index ranging from about 1.5 to about 2.0 and second optical elements have a refractive index ranging from about 1.7 to about 2.4.
- 5        22. A method of making retroreflective elements comprising:  
providing a plurality of core particles having surfaces comprising an unsolidified polymeric composition;  
combining the core particles with optical elements by means of a device comprising at least one rotating mixing member selected from the group consisting of a disc, an extruder screw, co-rotating blades, counter-rotating blades, and grinding plates, such that optical elements are embedded in the unsolidified polymeric composition; and  
10      solidifying the polymeric composition forming retroreflective elements.
- 15      23. The method of claim 22 wherein the unsolidified polymeric composition is selected from a molten thermoplastic resin and a bonded resin core precursor composition
24. The method of claim 22 wherein further comprising coating an inorganic core particle with the unsolidified polymeric material.
- 20      25. An apparatus for the continuous manufacture of retroreflective elements comprising:  
a means for providing a plurality core particles having surfaces comprising an unsolidified polymeric composition;  
a means for providing optical elements;  
a means for embedding the core particle with the optical elements forming retroreflective  
25      elements wherein the means comprises at least one rotating mixing member selected from the group consisting of a disc, an extruder screw, co-rotating blades, counter-rotating blades and a grinding plate; and  
a means for solidifying the polymeric composition forming retroreflective elements.
- 30      26. A method of coating particles comprising:  
providing a plurality of core particles;  
coating the particles with an unsolidified polymeric composition forming coated particles;

combining the coated particles with second particles by means of a device comprising at least one rotating mixing member selected from the group consisting of a disc, an extruder a screw, co-rotating blades, counter-rotating blades, and a grinding plate, such that second particles are embedded in the unsolidified polymeric composition; and

5 solidifying the polymeric composition.

27. The method of claim 26 wherein the core particles have a maximum dimension and the second particle have a maximum dimension that is less than half the maximum dimension of the core particles.

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28. The method of claim 26 wherein the unsolidified polymeric composition is a bonded resin core precursor composition

29. The method of claim 26 wherein the core particles comprises an inorganic material.

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30. A method of making retroreflective elements comprising:

providing a plurality of core particles having surfaces comprising an unsolidified polymeric composition;

coating the particles with an unsolidified polymeric composition forming coated particles;

20 combining the coated particles with second particles by means of a device comprising at least one rotating mixing member selected from the group consisting of a disc, a screw, co-rotating blades, counter-rotating blades, and a grinding plate, such that second particles are embedded in the unsolidified polymeric composition; and  
solidifying the polymeric composition.

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